Date: June 26, 1996

To: Ms. Janet Meyers, Procurement Technician/**ONR**

and Jennifer Rothrock/ Contracts and Grants Administrator, **PORD**

and Ms Nancy Wilson/Contract and Grant Administrator, **SIO**

Reference:

Final Technical Report (**SIO:** POR 1850)
4330:246:cgl
NAGW-3128
Response to letter dated: 06 June 1996

From: Peter Niiler, Principal Investigator
Scripps Institution of Oceanography @ UCSD

To Whom It May Concern:

The NASA funded research project entitled, "Use of CZCS Data in Modeling Ocean Seasonal Thermocline" has produced several interesting results. The first half of the project focused on calculating the seasonal cycle of the net heat flux and heat storage rates for the global ocean. The results from this work demonstrated that the seasonal net heat flux is balanced by the seasonal storage of heat in most regions of the ocean. Preliminary results were presented at both the 1994 Ocean Sciences meeting in San Diego and the 1996 American Meteorological Society annual meeting in Atlanta, GA. A paper, "Modeling the Seasonal Thermocline of the North Pacific" will appear in the Journal of Physical Oceanography for the 25th anniversary salute of that publication which will include presentations of all of the invited speakers, including Dr. Pearn P. Niiler.

The resulting seasonal heat flux is now being used in combination with a bulk mixed layer model to simulate the seasonal cycle of the SST and mixed layer depths. The forcing due to solar insolation is modified in this model by the changes in turbidity due to phytoplankton pigments. The estimates of the phytoplankton pigments are obtained using the historical global monthly mean CZCS chlorophyll estimates. The model results demonstrate that biologically induced turbitity can significantly alter the depth of the mixed layer and the magnitude of the season cycle of the sea surface temperature.

A paper presenting the results from this work is in preparation. Also a second paper which presents new estimates of the meridional heat transport using the calculated net heat flux and heat storage rates, is in preparation.

(continued on next page)

Talks Presented:
1994
by John Moisan and Pearn P. Niiler
"Global Heat Storage Rate and Heat Flux Patterns -- The Effect of Ocean Color on Mixed Layer Depths: 1978-1986; EOS, 75(3), 144, AGU/ASLO Ocean Sciences Meeting, San Diego, CA
1996
by Pearn P. Niiler
"Modeling the Seasonal Thermocline of the North Pacific, American Meteorological Society Annual Meeting, Atlanta GA.

Research Articles Published or in preparation:
1996
by John Moisan and Pearn P. Niiler
The Seasonal Heat Budget in the North Pacific Ocean: Net Heat Flux and Heat Storage Rates: (1950-1990), Accepted by Journal of Physical Oceanography, 1996.
1996
by Pearn P Niiler
Modeling the Seasonal Thermocline of the North Pacific, Journal of Physical Oceanography 25th Anniversary Salute. Accepted, 1995.
1996
by John R. Moisan and Pearn P. Niiler.
The Effect of Ocean Color on the Seasonal Cycle of the Sea Surface Temperature and Mixed Layer Depth. In preparation, 1996